MER Shift Reports

STS-107

Day 6 Shift 1

ORBITER ECLSS

STS-107 ECLSS SHIFT REPORT

FLIGHT DAY 6

SHIFT 3

All ECLSS systems performing nominally.

Orbiter began FES dump at MET 4/23:05 and is scheduled to terminate at 5/06:10.

Consumables:	Supply water	455.5	lb.
	Waste water	73.0	lb.
	Orbiter Nitrogen	220.7	lb.

Shift Leader
GMT 021/17:00

Thermal 1st Shift Landing Report
STS-107
January 21, 2003 11AM (021/17:00 GMT)

The performance of orbiter thermal systems is nominal and all subsystem temperatures are operating within acceptable limits.

The current NEOM weight predictions are currently 700 lb over the preflight prediction, due to lower than expected cryo usage. TCS and EECOM are working with other MOD disciplines to determine if the weight increase will affect NEOM tire pressures.

Tim Davies / Andy Hong / Sam Thomas

STS-107 ESD SYSTEMS SHIFT REPORT
DAY 6 SHIFT 1
GMT 021/17:00

Energy Division Subsystems (MPS, RCS, OMS, FC/PRSD, APU, and Hydraulics) continue to function satisfactorily with the following notes or exceptions:

APU - All APU heaters are functioning nominally on the 'A' string. All APU on-orbit parameters are nominal.

FC/PRSD - Subsystem performance is nominal. The third on orbit fuel cell purge was performed at 21/06:19 GMT (04/14:41 MET). During the 42-hour interval the approximate performance decay was 0.057 vdc in fuel cell 1, 0.19 vdc in fuel cell 2, and 0.18 vdc in fuel cell 3. The purge interval is being driven by performance decay of fuel cells 2 & 3. MNB is bus tied to MNC to help share the Space Hab payload power between fuel cell 2 & 3. Fuel cells 2 & 3 are each running at approximately 900 watts higher fuel cell 1.

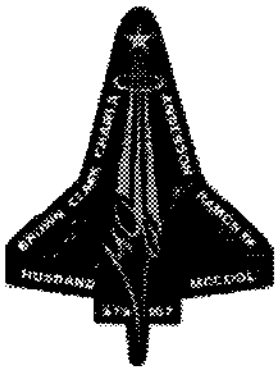
At approximately 20/03:00 GMT (03/1:21 MET) fuel cell 1 alternate water line temperature became erratic. Fuel cell 3 alternate water line temperature continues to be erratic. These temperatures indicate slight leakage of warm fuel cell water through the check valves.

MPS - At GMT 2003/016:17:25:15, approximately 1hour and 45 minutes after liftoff, the Engine 3 LH2 Prevalve Open Indicator B failed OFF for one sample (.080 sec). MPS does not believe this is a real indication of the state of the valve, but most likely a wiring anomaly.

This is the same position indicator that had multiple dropouts during the STS-35 flow. After performing voltage checks, wire harness flexing, connector inspections and installing multiple breakout boxes, no anomalies were revealed. During OPF processing, the six wires at the PV6 connector were removed and replaced, and failure analysis found no anomalies with the removed wire segments. This item was closed as an unexplained anomaly. MPS plans to get with KSC to discuss any further testing to be performed on this Prevalve.

Walt Scott

Walter Scott
ESD Team Lead



DPS PASS FSW, MEDS & H/W MER Shift Report

STS-107 **Date: 1/21/2003** **GMT: 021/17:00:00**
Shift: 1st

SYSTEM STATUS / ISSUES BEING WORKED

- All DPS systems performing nominally.

DPS Team Lead: Michael Banks **Signature:** Michael J. Banks

AVIONICS
FLIGHT CONTROL / GNC DAILY REPORT

01/21/03

STS-107
Daily Report
Flight Day 5

Flight controls and GNC systems are performing nominally.

Chuck Beatty
Jan. 201, 2003

STS-107
MER Comm and Track Shift Report
GMT 21:13:00
Shift 1

All comm and track systems are operating nominally.

COMM String 1 c/o (Part A) executed at GMT 020/16:08:22.
Part B c/o delayed by FAO for up to 12 hours for blue shift.
INCO-002 anomaly issued as preliminary for VTR tape rejection problem.

Billy Cowan

MER Comm & Track

STS-107 (OV-102 FLT 28)
1/21/03
8:00 AM
On-Orbit Shift Report

The HYD/WSB Systems are operating nominally and all parameters within their expected ranges. There have been no additional circulation pump runs for thermal conditioning or bootstrap re-pressurization. The HYD/WSB group is not working any issues at this time.

Total Circ Pump Runs

Thermal	**Accumulator Recharges**
Sys 1: 1 for elevon Park	0
Sys 2: 0 runs	0
Sys 3: 0 runs	0

Jeffery S. Goza HYD/WSB SSE

MER Shift Reports

STS-107

Day 6 Shift 2

ORBITER ECLSS

STS-107 ECLSS SHIFT REPORT

FLIGHT DAY 7

SHIFT 2

All ECLSS systems performing nominally.
The supply water dump through the FES on PRI A that started at MET 4/23:05 was terminated at MET 5/06:15.

Consumables:	Supply water	427.7	lb.
	Waste water	86.1	lb.
	Orbiter Nitrogen	220.3	lb.

Shift Leader
GMT 05/09:30

STS-107 MER Thermal 2nd Shift Report

022/01:00 GMT, 19:20 CST 01/21/2003

All thermal systems are performing nominally and all temperatures are within acceptable limits.

The current NEOM weight predictions are currently ~900 lb over the preflight prediction, due to lower than expected cryo usage. TCS and EECOM are working with other MOD disciplines to determine if the weight increase will affect the NEOM MLG tire pressure limit and potential additional thermal conditioining.

Dan Reynolds

Dan Reynolds/John Tran

STS-107 ESD SYSTEMS SHIFT REPORT
DAY 6 SHIFT 2
GMT 022/00:00

Energy Division Subsystems (MPS, RCS, OMS, FC/PRSD, APU, and Hydraulics) continue to function satisfactorily with the following notes or exceptions:

MPS (Editorial preface) – "Previously, It was reported that the failed measurement was Engine 3 LH2 Prevalve Open Indicator "B". A correction to this is required. The dropout was actually on the same prevalve, but other indicator (Engine 3 LH2 Prevalve Open Indicator "A"). The STS-35 failure was on Open Indicator "B". This does not change the story. For those of you who were not aware, the full story follows":

At GMT 2003/016:17:25:15, approximately 1hour and 45 minutes after liftoff, the Engine 3 LH2 Prevalve Open Indicator "A" failed OFF for one sample (.080 sec).

The Engine 3 LH2 Prevalve Open Indicator "B" had multiple dropouts during the STS-35 flow. This is the same Prevalve, but different indicator. After performing voltage checks, wire harness flexing, connector inspections and installing multiple breakout boxes, no anomalies were revealed. During OPF processing, the six wires at the PV6 connector were removed and replaced, and failure analysis found no anomalies with the removed wire segments. This item was closed as an unexplained anomaly. MPS plans to get with KSC to discuss any further testing to be performed on this Prevalve.

After a further review of the data, the Engine 3 LH2 Prevalve (PV6) Open indicator "A" has had 4 more dropouts with the same duration in the last 5 days. Also, we have just completed a review of all the other MPS measurements that are on the same MDM and found that the LO2 Pogo Recirc #2 Open Indicator has failed OFF 4 times in the last 5 days. Of the 5 Prevalve Open Indicators failing OFF and the 4 Pogo Valves Open Indicators failing OFF, only one of these pairs match-up at the exact same time. All other dropouts are at random different times. It is important to note here that these two measurements are both on the same MDM, card, and channel (FA04/08/00). The following table will show all the data for these data dropouts:

MSID	DESCRIPTION	GMT	DURATION
V41X1304X	ENGINE 3 LH2 PREVALVE (PV6) OP IND A	2003/016:17:25:15.026	.080
V41X1304X	ENGINE 3 LH2 PREVALVE (PV6) OP IND A	2003/017:18:11:19.486	.080
V41X1821X	LO2 POGO RECIRC 2 (PV21) OP IND	2003/017:18:11:19.486	.080
V41X1821X	LO2 POGO RECIRC 2 (PV21) OP IND	2003/018:00:12:42.166	.080
V41X1821X	LO2 POGO RECIRC 2 (PV21) OP IND	2003/018:16:36:03.118	.080
V41X1821X	LO2 POGO RECIRC 2 (PV21) OP IND	2003/019:05:27:55.758	.080
V41X1304X	ENGINE 3 LH2 PREVALVE (PV6) OP IND A	2003/019:22:13:32.486	.080
V41X1304X	ENGINE 3 LH2 PREVALVE (PV6) OP IND A	2003/020:03:46:14.246	.080
V41X1304X	ENGINE 3 LH2 PREVALVE (PV6) OP IND A	2003/021:13:07:32.958	???

The two that are highlighted in yellow are the only two that the time matches.

OMS/RCS

1. **The left OMS crossfeed zone 1 A heater thermostat** continues to dither (59.8°F – 61.7°F).
2. **Left OMS GN2 Accumulator pressure is holding.**
3. **Aft Left and Right Pod heaters were configured to the B-string** (A-OFF, B-AUTO) at 021/18:53:58 GMT to protect the aft RCS propellant tank temperature entry limit of 70°F.
4. OMS and RCS system data has been reviewed up through 021/19:00 GMT. System performance continues as expected with no anomalies noted.
5. All vernier jet firing through 021/15:00:00.000 GMT have been reviewed. There have been no anomalous pulses.
6. 23 of 38 primary thrusters have been fired. No new primary thrusters have been fired since the previous report.

EPDC The only problem being worked by EPDC is the intermittent "sluggish" AC2 phase B current response. The plots for the last 24 hours indicate that there were several new occurrences of the sluggish response.

All monitored voltage and current measurements were nominal. The 24 hour plots and the strip chart recorder data was reviewed with no unusual signatures noted.

Tom Davies
ESD Team Lead

MER FLIGHT CREW EQUIPMENT- GFE/CFE
STS-107 SHIFT REPORT

TO: MER MANAGER

SUBJECT: FD06; 3rd SHIFT REPORT

GMT: 022:01:00

EVENTS:
FCE continuing to monitor discussions on the loop in regards to the procedure for resolving the HUMSEP water leakage issue and the RS1 and RS2 resolution. Supported IFM meeting for developing procedures to clean up the remaining water.

FORWARD ACTIONS:
Monitor the water issue with the HUMSEP, which includes procedures for vacuum cleaner use. FCE anticipating a CHIT to review on procedures.

CHITS (Monitoring / Working / Waiting for Closure):
None of concern to FCE.

HARDWARE STATUS:
There have been no FCE anomalies recorded this reporting period. It is assumed all FCE is performing nominally.

Rob Rowland
Flight Crew Equipment- GFE/CFE

STS-107
OMS/RCS Day 6 Shift 2 Report

INITIATOR: Garza
DATE: January 21, 2003

MET: 05/04:56
GMT: 021/20:35
CENTRAL TIME: 2:35 PM CST

	Left		Right		Forward	
	Oxidizer	Fuel	Oxidizer	Fuel	Oxidizer	Fuel
PFS %	70.8	70.8	69.2	68.8	63.6	60.8
Interconnect Usage	0.000		0.000			

ORBIT

1. **The left OMS crossfeed zone 1 A heater thermostat** continues to dither (59.8°F – 61.7°F) .
2. **Left OMS GN2 Accumulator pressure is holding.**
3. **Aft Left and Right Pod heaters were configured to the B-string** (A-OFF, B-AUTO) at 021/18:53:58 GMT to protect the aft RCS propellant tank temperature entry limit of 70°F.

Data Review

1. OMS and RCS system data has been reviewed up through 021/19:00 GMT. System performance continues as expected with no anomalies noted.
2. All vernier jet firing through 021/15:00:00.000 GMT have been reviewed. There have been no anomalous pulses.

RCS PRESSURIZATION LEG **FRCS: A** **LRCS: A** **RRCS: A**

23 of 38 primary thrusters have been fired. No new primary thrusters have been fired since the previous report:

F1F		L1A	X	R1A	X
F2F		L3A	X	R3A	X
F3F		L1L		R1R	
F1L		L2L		R2R	
F3L	X	L3L	X	R3R	X
F2R		L4L		R4R	
F4R	X	L1U	X	R1U	X
F1D	X	L2U		R2U	
F2D	X	L4U		R4U	
F3D	X	L2D	X	R2D	X
F4D	X	L3D	X	R3D	X
F1U	X	L4D	X	R4D	X
F2U	X				
F3U	X				

MER FLIGHT CREW EQUIPMENT- GFE/CFE
STS-107 SHIFT REPORT

TO: MER MANAGER

SUBJECT: FD06; 2nd SHIFT REPORT

GMT: 021:16:00

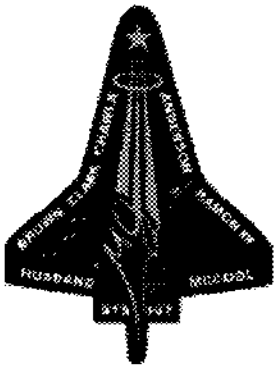
EVENTS:
FCE continuing to monitor discussions on the loop in regards to the procedure for resolving the HUMSEP water leakage issue and the RS1 and RS2 resolution. Supported IFM meeting for developing procedures to clean up the remaining water.

FORWARD ACTIONS:
Monitor the water issue with the HUMSEP, which includes procedures for vacuum cleaner use. FCE anticipating a CHIT to review on procedures.

CHITS (Monitoring / Working / Waiting for Closure):
None of concern to FCE.

HARDWARE STATUS:
There have been no FCE anomalies recorded this reporting period. It is assumed all FCE is performing nominally.

Lorree Fleming
Flight Crew Equipment- GFE/CFE



DPS PASS FSW, MEDS & H/W MER Shift Report

STS-107 **Date: 1/21/2003** **GMT: 022/01:00:00**
Shift: 2nd

SYSTEM STATUS / ISSUES BEING WORKED

- All DPS systems performing nominally.

DPS Team Lead: Tom Swartley **Signature:** Tom Swartley

MER Shuttle Safety Console
STS-107 FD 6 Shift 2
GMT 022:01:00

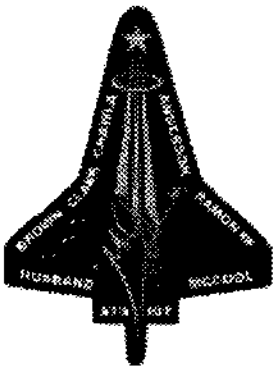
The MER Safety Console has been investigating issues surrounding the problems in the Spacehab Moisture Removal System.

Rich Gardner

MER Shift Reports

STS-107

Day 6 Shift 3



DPS PASS FSW, MEDS & H/W MER Shift Report

STS-107 **Date: 1/22/2003** **GMT: 022/09:00:00**
Shift: 3rd

SYSTEM STATUS / ISSUES BEING WORKED

- All DPS systems performing nominally.

DPS Team Lead: Trevor Tidwell **Signature:** Trevor Tidwell

MER FLIGHT CREW EQUIPMENT- GFE/CFE
STS-107 SHIFT REPORT

TO: MER MANAGER

SUBJECT: FD07; 1st SHIFT REPORT

GMT: 022:09:00

EVENTS:
FCE continuing to monitor discussions on the loop in regards to the procedure for resolving the HUMSEP water leakage issue and the RS1 and RS2 resolution. Supported IFM meeting for developing procedures to clean up the remaining water.

FORWARD ACTIONS:
Monitor the water issue with the HUMSEP, which includes procedures for vacuum cleaner use. FCE anticipating a CHIT to review on procedures.

CHITS (Monitoring / Working / Waiting for Closure):
None

HARDWARE STATUS:
There have been no FCE anomalies recorded this reporting period. It is assumed all FCE is performing nominally.

Kevin Rullman
Flight Crew Equipment- GFE/CFE

ORBITER ECLSS

STS-107 ECLSS SHIFT REPORT

FLIGHT DAY 7

SHIFT 3

All ECLSS systems performing nominally.

Consumables:	Supply water	451.7	lb.
	Waste water	99.2	lb.
	Orbiter Nitrogen	215.6	lb.

Shift Leader
GMT 022/08:44

Thermal 3rd Shift Report

STS-107, January 22, 2003
3 AM, MET 05/17:21 (22/09:00 GMT)

All temperatures are within acceptable limits and all thermal systems are operating nominally. The MASTER file fell behind again tonight, it was reported to the MER admin personnel and it has recovered.

_____
Shannon Belknap

STS-107 ESD SYSTEMS SHIFT REPORT
DAY 6 SHIFT 3
GMT 022/09:00

Energy Division Subsystems (MPS, RCS, OMS, FC/PRSD, APU, and Hydraulics) continue to function satisfactorily.

John Norris
ESD Team Lead

MER Shuttle Safety Console
STS-107 FD 6 Shift 3
GMT 022:08:24

The MER Safety Console is not working any safety of flight issues.

Denise Londrigan